ACTION PLAN ON POLLUTION AND CLIMATE CHANGE

A POLICY ROADMAP FOR AUSTRALIA

JULY 2010

The Climate Institute

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1. Introduction

Australia's economy is currently too dependent on industries and technologies that cause pollution. The pollution intensity of the Australian economy is, for example, one and half times greater than the average of other advanced OECD countries.

The consequences of Australia's dependence on pollution are not limited to climate change.

In 2003, more than 3,000 people prematurely lost their lives as a result of air pollution in Australian cities and towns.[1] Many more suffer debilitating illness, sometimes chronic, with serious consequences for families, communities and productivity.

Pollution is being absorbed into the oceans and, as a result, turning the seas more acidic which in turn threatens the world's fishing industries and food supplies for many millions of people.[2]

The build-up of carbon dioxide in the air is affecting the nutritional quality of world staple crops like wheat; reducing protein content and raising the level of some poisons,[3] and making droughts in Australia more frequent and more intense.[4]

In the United States the Supreme Court recently found that greenhouse gases are air pollutants that should be covered by the USA Clean Air Act because they endanger public health or welfare.[5]

Australia needs a plan to end our dependence on pollution and fast track a shift to a clean energy and low pollution economy.

A central element of any credible plan for Australia today and into the future will be to reduce damaging pollution, to make clean energy sources cheaper and join the world's other major economies in taking responsibility for our role in climate change.

In 2007 in advance of the last Federal Election, The Climate Institute outlined an ambitious, flexible and cost-effective policy pathway to advance Australia's national interests in addressing climate change.[6] Since then the nation has seen a change of government, two major reviews of the economics of pollution policy,[7] extensive debate around policies to limit pollution through the Carbon Pollution Reduction Scheme[8] and a major gathering of world leaders in Copenhagen which delivered a politically binding framework agreement to avoid dangerous climate change.[9]

At a global level there are now more policies and measures in place to limit pollution and make clean energy cheaper than ever before. The global trend in policy action and investment accelerated in the lead up to and following Copenhagen, particularly in developing countries. Overall, between October 2009 and February 2010, 154 new policy announcements were made globally.[10]

The growing number of real and implicit pollution limits is driving a global shift to clean energy. A recent Worldwatch Institute report highlighted that in 2008[11]:

- Investment in new renewable power capacity exceeded that for coal, oil and gas technologies by an estimated US$30 billion;
- Developing countries accounted for a growing share of global clean energy investments, with China alone responsible for just over 10 percent (US$15.6 billion) of the 2008 total; and
- For the first time, both the United States and the European Union installed more power capacity from renewable technologies than from all fossil fuels and nuclear combined.

A report for Westpac and The Climate Institute by Bloomberg New Energy Finance tells a similar story: Despite the recent economic downturn and on the back of clean energy measures in national stimulus packages, global investment will reach US$154 billion in 2010.[12]

How does Australia's pollution dependence compare?

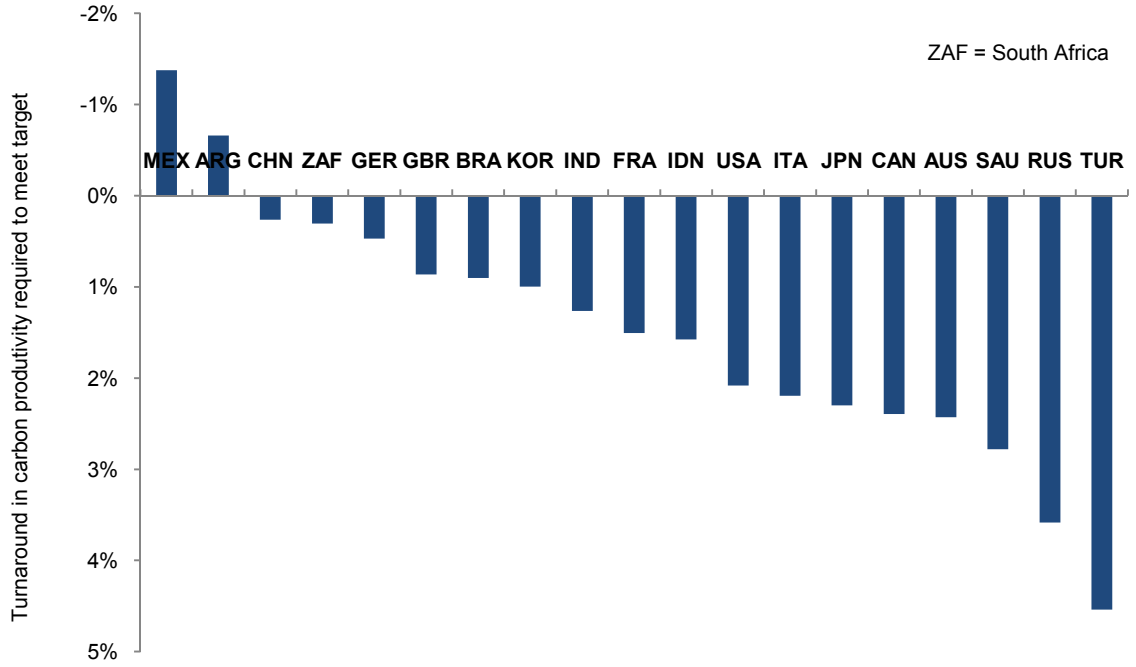
Most major economies have committed to limit, in absolute or relative terms, the pollution they release. How countries achieve these reductions will vary but the globally-preferred policy instruments include a mix of caps on the amount of pollution that can be released from particular sectors, regulations to remove the most inefficient or polluting technologies from the market, price incentives to make clean energy sources cheaper, and research and development incentives to drive innovation in emerging clean energy options.

In 2009, The Climate Institute and the European think tank, E3G commissioned the leading London based economics group Vivid Economics to measure the low pollution competitiveness of G20 countries.[13] Using "carbon productivity" – the level of Gross Domestic Product (GDP) per tonne of pollution – as the starting point for assessing a country's low carbon competitiveness the report found:

1. Only two G20 countries – Mexico and Argentina – are currently improving carbon competitiveness fast enough to meet objectives set out in the Copenhagen Accord. Australia ranks 16th, with only Turkey, Russia and Saudi Arabia requiring bigger turnarounds to meet this target. (Figure 1.)
2. The countries that are currently best placed to offer economic prosperity to their citizens in a low-carbon world are France, Japan, the UK, South Korea and Germany. Australia ranks 15th – the weakest position of any industrialised country within the G20.
3. There have, however, been some significant improvements since 1990: Almost all G20 countries, except Brazil and Saudi Arabia, have recently grown their economies while improving their carbon productivity. Australia ranks 7th on the improvement index behind countries as diverse as Germany, Mexico and South Africa.

FIGURE 1: LOW-CARBON GAP INDEX

Assuming projected rates of economic growth and global action that would peak global emissions by 2020, only Mexico and Argentina are currently improving their low carbon competitiveness fast enough to meet ambitious global carbon targets.



1.1 ABOUT THIS POLICY BRIEF

This policy brief – based on a review of The Climate Institute's proposed policies in light of the outcomes and lessons of events over the last three years – outlines the role that Federal Government should play in reducing our economy's dependence on pollution and making clean energy cheaper.

This policy brief focuses on policies that cover the following three spheres:

1. Limiting and reducing pollution at home and internationally
2. Making companies take responsibility for the pollution they create
3. Making clean energy cheaper

Action in these three areas will ensure Australia does not continue to miss out on the economic, health and environmental opportunities from limiting pollution and growing a cleaner, more competitive economy.

Where applicable, the brief also outlines examples of comparable policies in other major emitting countries.

Limiting the global effects of pollution will require coordinated international action. In a separate policy brief, The Climate Institute has mapped out a potential path forward internationally.[14] However, the key policy recommendations from this document and previous analysis by The Climate Institute are also outlined in the policy recommendations here. Overall, the implementation of credible domestic policies remains central to achieving the objectives of the Copenhagen Accord and building global ambition and action.

A more detailed explanation of this policy suite is available. This will form the basis for assessing policy announcements made by the ALP, Coalition and The Greens. The Climate Institute will also be publishing the results of the Pollute-o-meter, which provides objective computational modelling of the amount of pollution that could be saved by each of the party's policies, prepared by independent consultants, ClimateRisk.

2. Limiting and Reducing Pollution

Australia and the majority of the world's governments have committed to the Copenhagen Accord which agrees to limit global warming to less than 2^{o}C. It is also increasingly clear that even this level of warming puts the lives and livelihoods of millions of people at risk, directly and indirectly.[15] This has sparked calls from the world's most vulnerable people – including Australia's Pacific island neighbours – to peak global temperatures well below 2^{o}C and return to around 1.5^{o}C levels by 2100.

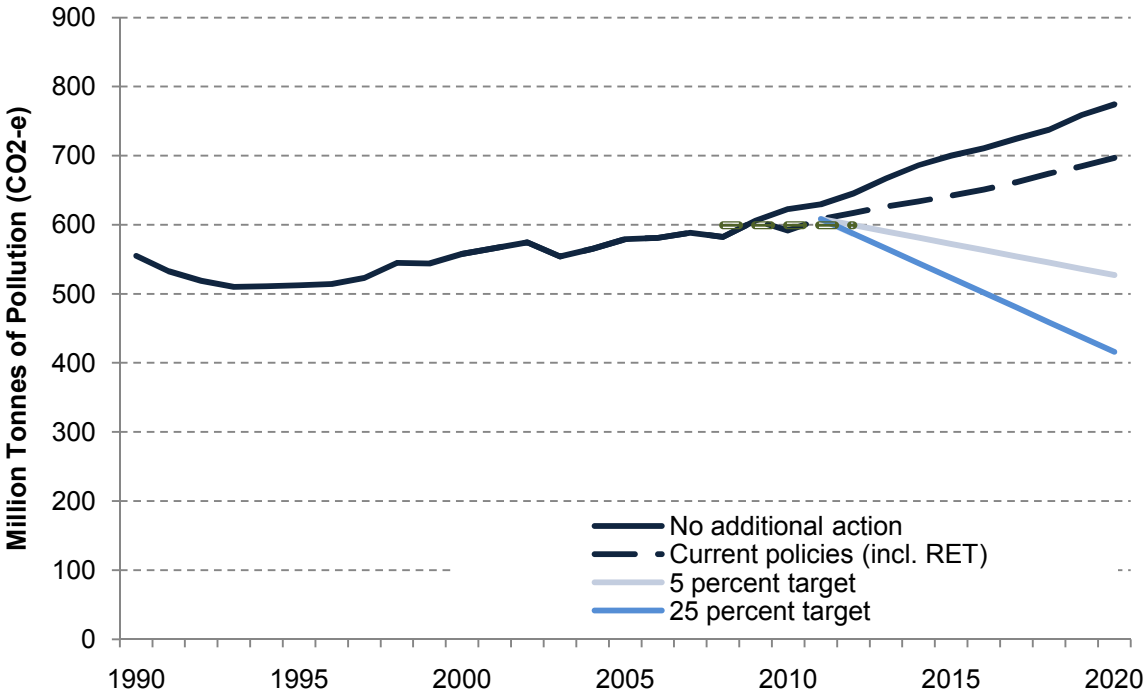
Research commissioned by The Climate Institute and others has demonstrated that, unless global emissions peak before 2020, achieving these goals becomes virtually impossible.[16]

2.1 TAKING STOCK

Australia's current international commitment would see pollution levels fall by 5 to 25 percent below 2000 levels by 2020, depending on the level of international action (Figure 2.)

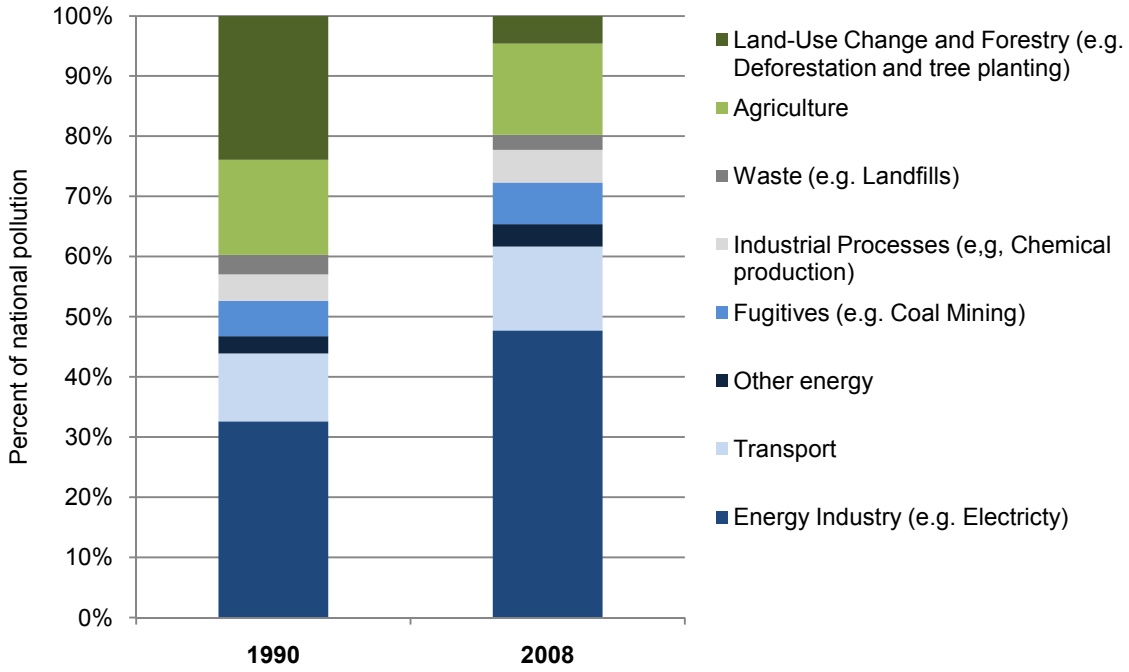
As argued by Professor Garnaut, amongst others, the only fair and credible pollution target for Australia, if it is to contribute to meeting the objectives of the Copenhagen Accord, is a 25 percent reduction on 2000 levels by 2020. All independent assessments to date show that Australia's commitment should be at least 15 percent given current commitments from other major polluters.[17]

FIGURE 2: AUSTRALIA'S PROJECTED 2020 POLLUTION LEVELS AND CURRENT INTERNATIONAL COMMITMENTS



Total national pollution levels are currently increasing and must peak urgently if Australia is to achieve credible pollution targets. Figure 3 provides an overview of Australia's pollution profile and illustrates the need to ensure that pollution cuts are achieved across all sectors to achieve significant national pollution reductions. Excluding sectors or industries from the national pollution effort just shifts the responsibility and costs of achieving pollution targets to other sectors, communities and industries.

FIGURE 3: AUSTRALIA'S CHANGING POLLUTION PROFILE - SECTOR EMISSIONS AS A PERCENT OF NATIONAL EMISSIONS



2.2 A SENSIBLE AND EFFECTIVE WAY FORWARD

Allowing firms to meet regulated pollution limits in a way that suits their circumstances is the simplest, cheapest and best way to encourage business to invest in pollution reductions. An emissions trading scheme (ETS) would allow businesses to find the most cost-effective technologies and provide incentives for innovation, creating a level playing field for business and consumers.

Developing a single national market-based limit on pollution will help remove the cloud of policy uncertainty that hinders major energy sector infrastructure investments. A delay of certainty will likely increase wholesale electricity prices by around 13 percent by 2020, more than would be the case with decisive policy action. This equates to around $2 billion a year in unnecessary electricity costs in 2020.[18]

The development of an internationally compatible ETS – one that does not artificially stymie links with other existing and emerging schemes – will give Australian firms the chance to seek least-cost pollution reductions overseas. These links should assure only credible international pollution permits are imported; those that help to build stronger, more ambitious global action.

In defining pollution limiting policies three further points are worth considering:

1. *Climate policies often yield multiple benefits:* Action to reduce pollution and save energy can deliver many benefits. For example, the benefits of improved energy efficiency will be felt in Australian low income households, where energy costs generally consume a much larger proportion of income than for families in a higher income bracket.[19] Other benefits include improved public health from better quality, improved energy security and infrastructure savings. The latter stems from delaying or avoiding the need to build additional energy generation and transmission infrastructure.[20] Clean energy and energy efficiency programs can also modernise the skills base of existing trades people, provide extra low pollution jobs, and boost the building and energy services industry generally.

2. *Emissions standards limit 'pollution lock-in':* Failure to implement energy efficiency options, regulations and standards runs the risk of higher adjustment costs for businesses. This 'pollution lock-in' occurs when new traditional coal-fired generation plants are built, for example, locking in high levels of pollution for decades and raising the cost of making significant reductions in emissions down the track. This has driven countries like the United Kingdom to begin to introduce tighter emission standards to rule out the building of traditional coal-fired power plants.

3. *Address sectors not covered by a pollution limit:* The land sector – agriculture and forestry – is both a significant source of pollution and, potentially at least, a sizeable carbon sink. For various reasons, such as accounting difficulties and the sector's diffuse nature, covering farm emissions directly under a pollution cap is fraught with difficulty. Instead, a package of regulation and co-regulation, as well as levies and other financial incentives, should be used to spur investment in low pollution farming systems and credible carbon sequestration in the landscape. Australia is one of the few developed countries where the land sector plays such an important role in emissions. Low emissions technologies and practices can be developed with a view to applying them in developing countries where emissions sources, such as livestock, are growing rapidly

What about soil carbon?

Carbon sequestration in soils is often promoted as an abatement strategy and there is no doubt that the rehabilitation of degraded farmland can make an important contribution to avoiding dangerous climate change. Soil conservation strategies can also help farmers adapt to a warming world. The situation is, however, more complex than it seems.[21] Under the Kyoto Protocol, Australia has elected not to account for soil carbon in its pollution reduction target. This is primarily because it is very hard to separate natural and managed changes. Under Australian conditions, the amount of carbon in soils is very sensitive to heat and rainfall, and can swing wildly from year to year. In 1990, for instance, Australia's grazing land was a net carbon sink, while in 2007 – during the last drought - it pumped around 250 Mt of carbon dioxide back into the atmosphere. This is more than the total carbon released from all of Australia's fossil fuel electricity generators in 2008.[22]

It is in Australia's interests to remain part of an international, rules-based effort to avert dangerous climate change, and it is unclear whether the rules on soil carbon will change substantially anytime soon. It is very difficult to cost-effectively measure and monitor changes in soil carbon and attribute these to specific management actions, and hence properly reward landholders. It is, moreover, very difficult to guarantee the permanence of carbon sequestered in soils, especially in an increasingly hostile climate. Under current rules, the Australian taxpayer would be liable for any reversal of soil carbon sinks in the future. All of these risks and uncertainties, together with opportunity costs, the costs of compliance, and the costs of extra farm inputs, mean that the price paid by the markets or governments for soil carbon would need to be reasonably high to be competitive, and hence secure widespread adoption and substantial abatement. On the other hand, there is no reason not to encourage a voluntary soil carbon market and to invest in the research, development and extension services needed to advance excellence in soil carbon management.

2.3 POLICY PRIORITIES

The Climate Institute is advocating the following key policy priorities for limiting and reducing pollution, both here and internationally:

i. **Avoid highly dangerous pollution levels**: Advocate global action consistent with peaking global temperate below 2°C above preindustrial levels and returning to below 1.5°C by 2100. Specifically, global emissions should peak no later than 2020 and return to around 85 percent below 1990 levels by 2050.

ii. **Limit Australian pollution and meet international commitments:** By the end of the next term of government (2013), Australia's domestic carbon pollution levels have must peaked and as part of a global effort be on track to at least a 25 percent net reduction on 1990 levels by 2020 and zero net pollution by 2050. In 2011, implement a legislated declining limit or cap on pollution, for example as part of an emission trading scheme, that is consistent with achieving a 25 percent reduction on 1990 levels in national pollution by 2020.

iii. **Accelerate further global action:** Drive greater levels of global ambition through implementing the Copenhagen Accord and meeting international commitments including contributing a fair share to new and additional global low pollution financing in developing countries.

iv. **Avoid locking in high polluting technologies:** Introduce standards and regulation to limit pollution and avoid locking in high polluting technologies. This would include:
    - a low emission standard for new power stations to ensure no new conventional coal plants are built, and that all investments in new coal and gas plants move towards full commercial scale CCS post 2020;
    - establishing a regulatory pathway towards a zero net energy/carbon target for new buildings by 2030;
    - introducing national legislation to streamline, expand and continually strengthen minimum energy performance standards (MEPS) for appliances to move towards world's best practice, and;

- immediately introduce mandatory fuel efficiency standards for passenger vehicles to ensure consistency with similar regulations in the US by 2015, and EU standards by 2020.

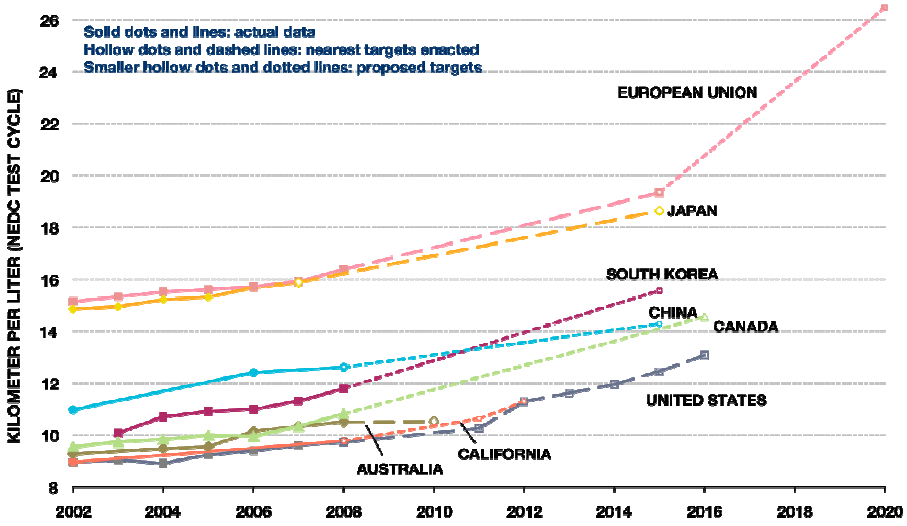
v. **Make the land sector part of the solution:** Reward early action to enhance carbon sinks, avoid deforestation and drive innovation in the land sector. Including:
   - fast-tracking a program to allow landholders to access bankable pollution market opportunities, including enabling over 10 million of tonnes of credible, internationally compliant carbon sequestration and agricultural sector abatement by 2013;
   - immediately implement co-funding and co-regulatory agreements with industry to drive emissions abatement in the agricultural sector; and
   - develop appropriate pollution pricing, regulations and/or financial incentives to limit agricultural emissions to be introduced by no later than 2015.

Performance standards in leading countries

The Japanese Government has introduced the Top Runner energy efficiency program, which set mandatory energy performance standards for a range of different products, including passenger vehicles, air conditioners, televisions and other household appliances. As of 2009, 21 separate products were covered by the scheme. As its name suggests, the key feature of the scheme is that the minimum standard is set by the product with the highest energy efficiency performance. The standards are reviewed periodically, and adjusted upwards to match the market leader. Where it can be shown that the market leader is not meeting the full energy efficiency potential for a given product, the government sets the standard even higher, ensuring that the market if forced to improve more quickly. Since its inception, the Top Runner program has delivered energy savings of between 16 percent and 80 percent, depending on the product in question.

The EU and Japan also currently have the world's most stringent emission standards for passenger vehicles, and regulations are in place to tighten these significantly further over the next five years. By 2015 all passenger vehicles sold in the EU must not exceed 130 g CO2/km, while in Japan cars must not exceed 125 g CO2/km. The EU has proposed tightening these standards to 95 g CO2/Km by 2020. To put this in perspective, cars manufactured in Australia currently emit on average around 222 g CO2/km, which is around 50 percent higher than current levels in Europe. (See Figure 4.)

FIGURE 4: PASSENGER VEHICLE PERFORMANCE STANDARDS BY FLEET AVERAGE AND REGION[23]



In the building sector, the UK Government has introduced plans to ensure all new buildings are zero carbon, with residential buildings to achieve this goal by 2016 and non-residential buildings by 2019. These new standards will be implemented through the national Building Regulations, and will involve minimum energy efficiency standards and on-site energy generation. The goal is that over a year buildings will have zero net carbon emissions.

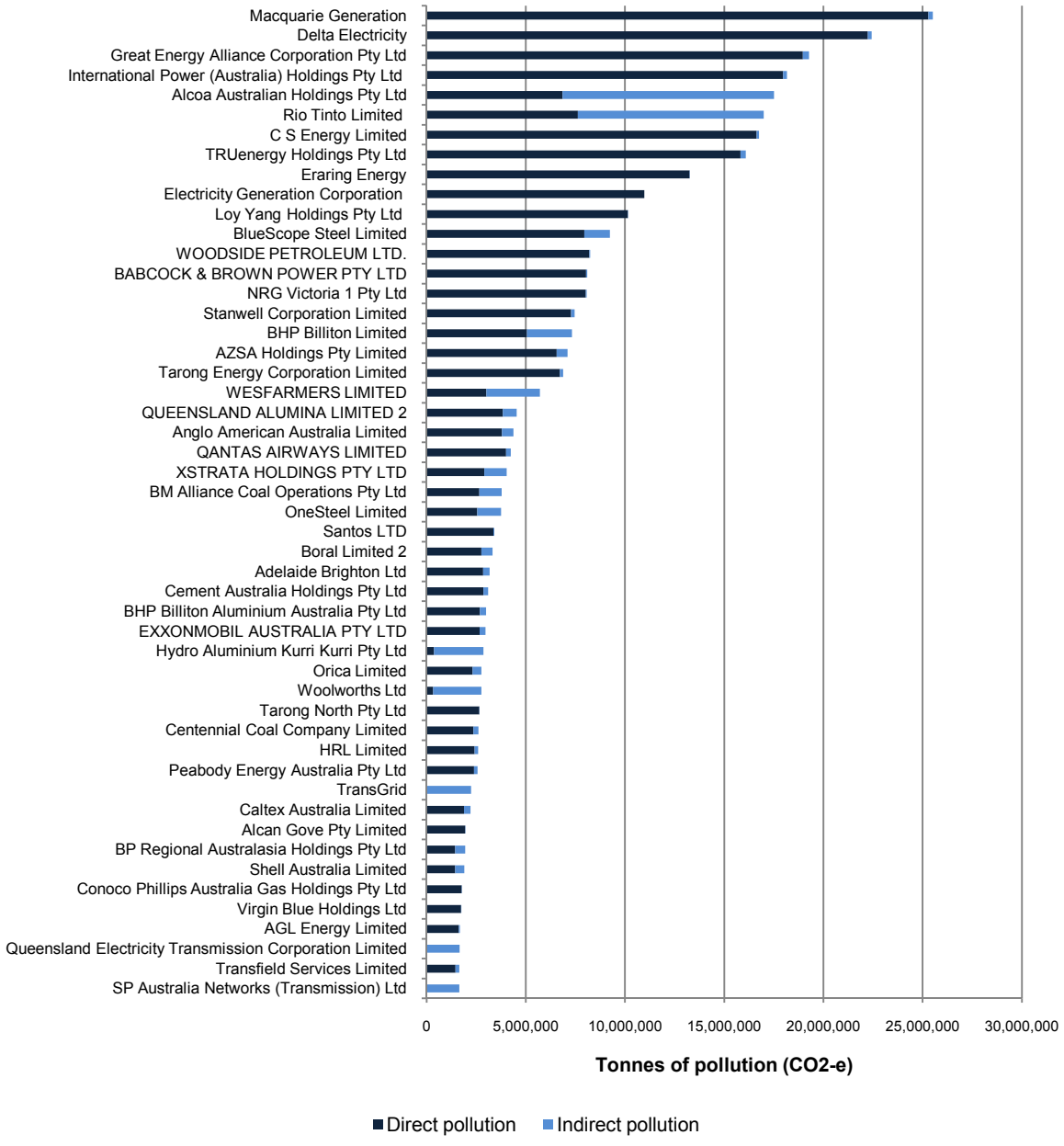
3. Making business responsible for the pollution they cause

Making business accountable for the pollution they cause is central to driving investment in clean energy.

Under international agreements such as the Copenhagen Accord and the Kyoto Protocol, the Australian Government is accountable to the international community for the pollution we as a nation release into the atmosphere. However, unless the Government wants to intervene directly in every polluting activity from turning on light switches to manufacturing steel, the people and industries responsible for these decisions will need to be made accountable for the pollution they create.

In Australia, the 50 largest polluting companies are directly responsible for over 50 percent of national emissions. (See Figure 5.)

FIGURE 5: AUSTRALIA'S TOP 50 POLLUTING COMPANIES[24]



Placing a pollution reduction responsibility on a relatively small number of companies is therefore a very efficient way to limit pollution. If this responsibility, or liability, is created under an emissions trading system this gives those companies the flexibility to meet these goals in a way that best suits their businesses needs. It takes individual investment decisions away from the government.

Under certain emission trading design proposals, how the responsibility is allocated will affect the overall cost and effectiveness of the scheme. For example, it would be possible to design a scheme that set a forward looking pollution baseline and only made companies liable under the scheme if their pollution levels rose above this level. Depending how the baseline is set this can have a major effect on whether companies are rewarded for action they would be taking anyway or whether you are driving real change in the economy.

Setting a baseline pollution path that was close to the natural process of the industry investing in less polluting new technologies as they become more economically competitive, no additional structural change would occur and you would be placing an administrative burden on industry for no wider benefit. Industry would also not factor in higher product costs into its goods and services (e.g. higher electricity prices) and no incentive would be passed on to consumers to switch to goods and services based on lower pollution industries.

Also, pollution liabilities can be implemented through measures outside of emissions trading. These could include other types of pollution prices and regulations. Regardless of the measure, Australian businesses should be responsible for every tonne of pollution they release.

Other considerations when assigning responsibility for limiting pollution include:

1. Industry assistance: The value and extent of industry assistance packages is an inevitable part of any discussion around pollution limiting and pricing policies. In a limited number of cases industry assistance is warranted[25] and depending how it is designed industry assistance does not necessarily remove incentives for businesses to invest in clean energy. For example, the industry assistance to large polluting exporting companies that was developed under the Carbon Pollution Reduction Scheme maintained strong incentives for companies to invest in low emission technologies.[i] The scheme also included reviews and mechanisms to ensure that assistance could be removed as global action accelerated.

   However, the overall assistance package in the Carbon Pollution Reduction Scheme was excessive and industry claims of the impact of the scheme were largely overstated.[26] This reduced the revenue available to Government to invest in clean energy solutions in Australia and overseas. This in turn would have increased the cost of reducing our economy's dependence on pollution.

   As we move forward, an allocation of responsibility to reduce emissions or any industry assistance should ensure additional action beyond business as usual, maintain incentives to switch to low pollution technologies, encourage activities and behaviour change across the Australian economy and drive structural and technological changes in high emitting industries. It should also be transparent, targeted, flexible and regularly reviewed, and reduced through time.

2. Fiscal responsibility: While placing liabilities on businesses to reduce pollution is effective, efficient and equitable it is ultimately the Australian Government's responsibility to meet international commitments. In the absence of the Government making high emitting industries responsible, the liability will fall on the Government and therefore the tax payer to meet

[i] Investors in these industries would have been faced with a declining level assistance that was periodically reviewed to ensure it was calibrated to the increasing real and implicit pollution prices in competitor countries. Also they did not received 100 percent assistance and where it was applied it was targeted at particular activities, not full facilities. While the assistance would not encourage production based pollution reductions – this would be determined by the level of international action – it would not have overly damped incentives to invest in low emission technology.

international obligations. For example, while Japan is working to change this through the development of its own domestic emissions trading system, to date, the Government has only asked industry to take voluntary action. As a result the Government will need to buy approximately 100 million tonnes of international pollution permits to meet its target under the Kyoto Protocol. Failure to make companies responsible and/or excessive industry assistance therefore poses budget and fiscal risks to the Government.[27]

3. Transparency and accountability: Transparency and accountability are central elements to a fair, effective, low cost and politically durable pollution limiting policy. For example, global pollution markets rely on countries to give assurances that reductions are real, and that governments will be accountable for emission reductions within their country. Also, Australians would expect that companies that have billions of dollars worth of industry assistance would expect those companies to have undertaken action to reduce pollution that is already cost effective and that the assistance be removed when it is no longer needed.

   As threat to their shareholders' long-term returns, disclosure regarding climate change-related risks should also be mandatory. The ability of a superfund (or other investor) to manage climate change risk begins firmly with the identification and measurement of that risk. Currently there is no driver to identify and/or measure these risks because there is no disclosure requirement to provide visibility of any risk/opportunity management.

3.1 POLICY PRIORITIES

The Climate Institute is advocating the following key policy priorities to make businesses responsible for the pollution they create:

i. **Making business accountable for pollution:** Legislate in 2011 to place pollution reduction responsibility, or liabilities, on Australia's largest emitters to ensure they take full responsibility for the pollution they cause and companies contribute to doing their fair share towards meeting legislated national emission limits.

ii. **Define the principles of a fair, effective and transparent industry package:** Industry assistance under any pollution limiting and pricing scheme should be transparent, flexible and regularly reviewed, fiscally responsible, reduced through time and targeted. It should also maintain incentives to invest in low pollution technologies, activities and behaviours, and drive structural and technological changes in high emitting industries towards world's best practice and beyond.

iii. **Reduce investment risks and enhance transparency:** Ensure transparency and accountability in limiting pollution and making clean energy cheaper by:
   - introducing new national regulations mandating that listed companies, institutional investors and superannuation funds disclose their level of exposure to long-term risks associated with climate change impacts and costs associated with carbon abatement policies;
   - extending the scope of the Energy Efficiency Opportunities Act;
   - enhancing the oversight role of the Carbon trust;
   - implementing a greenhouse pollution trigger in the Environment Protection and Biodiversity Conservation Act, and;
   - accepting forest management emissions under the national target.

4. Making clean energy cheaper

Until clean energy becomes cheaper relative to polluting energy sources it will not see large scale use and deployment. Specific government interventions such as renewable energy targets, feed-in tarrifs and other support subsides are critical and have driven the global boom in clean energy investments because they make clean energy investments more profitable.

However, to drive systematic change in the energy sector and across the entire economy a price tag on pollution is critical. As the pollution price increases through time the balance in the economy will shift away from pollution based industries and activities to clean energy based technologies, goods and services. A pollution price, if applied broadly, will also drive innovation across the economy at large, as opposed to at a sectoral level which is a feature of measures like the Renewable Energy Target.

Finally, investors need confidence that they will receive returns on capital intensive projects. A steadily increasing and long-term pollution price is critical to giving businesses the confidence to invest in clean technologies.

To illustrate, recent modelling commissioned by Westpac and The Climate Institute showed that while the Renewable Energy Target started structural change in the electricity sector, and positioned the industry to play its full role in meeting future targets at lowest cost, the measure itself had little impact on highly polluting power sources like coal.[28] This occurred because while it drove substantial investment in wind and other clean energy sources, coal remained cheap relative to other lower emission power sources such as efficient gas-fired generation. Without a pollution price, coal will remain cheap relative to gas and clean energy sources, and the full suite of lower emission sources will not be deployed.

This broader transition is a feature of other scenarios modelled for The Climate Institute.[29] Under this modelling, the Renewable Energy Target drives sustained new investment in clean energy sources and is underpinned by a pollution price, which drives high emission coal out of the sector, to be replaced by lower emission gas and eventually near zero-emission power sources such as large-scale renewable energy and fossil fuels which capture and safely store pollution.

4.1 POLLUTION PRICE IS NOT ENOUGH

By themselves limits and price signals will not achieve pollution reduction targets at lowest cost.

The importance of some additional interventions is reduced in the presence of a strong emission limits and high pollution costs. The opposite is also true. In the absence of such policies more and more diffuse policy interventions will be required to meet international emission commitments.

This is due to a number of factors, or market failures, that are unlikely to be addressed or overcome by limits on pollution and price based policies. For example, there is significant evidence that privately and socially cost effective energy efficiency options are currently not being adopted in Australia.[30]

Fossil fuel subsidies have the opposite effect to pollution prices as they distort energy markets towards polluting activities. Not only does this increase pollution and make clean energy relatively more expensive, it also works against pollution pricing and increases the cost of meeting pollution targets. Removing these subsides would help overcome barriers to low pollution investments by levelling the playing field with higher pollution sources and is consistent with Australia's international commitments at the G20 and under the Kyoto Protocol.[ii]

The accelerated deployment of clean energy technologies is likely to drive reductions in business and technology costs that will make long-term reductions in pollution cheaper. For example, as Australian companies and industries adopt clean technologies they will find ways to reduce costs through economies of scale, more efficient business models and learn how to better integrate new

[ii] During the 2009 G20 Leaders Summit in Pittsburgh, Australia committed to phase out inefficient fossil fuel subsidies. A similar commitment exists under the Kyoto Protocol.

technologies into the current energy and other systems. This benefits all of society as costs are lower than they would have been without this market based experience.

Independent modelling commissioned by The Climate Institute concluded that the Renewable Energy Target improved the cost effectiveness of the Australia's policy mix and reduced the required investments in meeting long-term pollution limits by AU$14 billion due to fast-tracked market experience and innovation, and making clean energy cheaper.[31]

Innovation and other market failures are particularly acute in industries and technologies that have yet to be proven at commercial scale. These barriers include regulatory uncertainty over future pollution constraints, low levels of community acceptance and understanding, high capital costs, the lack of investment returns for technology demonstration, infrastructure requirements and associated costs and logistics, and the limited deployment incentives for initial commercial-scale developments.

Barriers to large investments in high risk, first of kind projects, need to be removed, and incentives provided for projects that will build national clean energy infrastructure.

Finally, government policies should aim for a broad range of technologies to be commercially deployed by 2020. There is uncertainty around the commercial and technological viability of some new low emission technologies (e.g. carbon capture and storage, geothermal, large-scale concentrated solar with storage). A balanced approach to technology RD&D and commercial deployment will reduce the risks associated with potential technology failure. This will build industry capacity and increase the electricity sector's flexibility in meeting long-term targets.

Critically, the experts broadly agree that while energy efficiency and renewable energy will have the biggest effect on pollution in the short term, a full basket of technologies will be essential if we are to avoid dangerous pollution levels in the atmosphere. The Intergovernmental Panel on Climate Change notes that achieving strong pollution limits[iii] will depend on using a wide range of pollution reduction options and the technology 'readiness' of advanced technologies that remove pollution from the atmosphere (e.g. biomass and carbon capture and storage).[32]

A full policy tool kit bringing together clean energy sources into the market place by 2020 can help reduce the costs of achieving our reduction targets by unlocking Australian innovation. A diverse portfolio approach will maximise our chances and flexibility for big pollution reductions.

4.2 POLICY PRIORITIES

The Climate Institute is advocating the following key policy priorities to make clean energy cheaper:

i. **Put a price tag on pollution:** Starting in 2011, implement an increasing and credible carbon pollution price. A price floor should be set at $20 per tonne in 2011 and increased each year by 4 percent plus the percentage increase of the consumer price index. An equivalent pollution price should be applied no later than 2015 to sectors not covered by the legislated pollution limits.

ii. **Drive smart innovation**: While ensuring a balanced approach to RD&D, drive early deployment of new emerging clean energy options, above the Renewable Energy Target, by:
    - putting in place policies, such as loan guarantees, tax credits, seed funds co-investment and accelerated depreciation, to reward and overcome any remaining barriers to upfront investments in emerging technologies, such as geothermal and electric vehicles, and;
    - ensure policies specifically target barriers to investment in the necessary infrastructure to support clean energy investments (for example, smart grids, CCS pipelines and storage hubs, and additional electricity network infrastructure).

i. **Remove incentives and subsidies to pollute**: Commit to implementing relevant provisions of the Henry Tax review (for example, amending the Fringe Benefits Tax and designing road user charges to support low emission options). In the 2011 budget, begin phase out of

[iii] Stabilisation of atmospheric greenhouse gas emissions at 450 ppm-e and lower.

perverse fossil fuel subsidies as per a credible interpretation of G20 commitments at the 2009 Pittsburgh meeting.

ii. **Join the global race to save energy**: The Federal Government should adopt a national energy efficiency target to put Australia in the top five of OECD countries for efficiency improvements by 2020. Commit to at least a 40 percent improvement in the energy intensity of Australia's economy by 2020, off 2005 levels (this equals around a 15 percent reduction from published business as usual reductions).

iii. **Engage business in delivering energy savings across the economy**: Establish a National Energy Savings Initiative, mandating energy retailers and large industrial energy users to achieve a set level of energy savings each year in the residential, commercial and industrial sectors.

iv. **Make buildings more comfortable and efficient by saving energy:** Deliver financial support for energy efficiency upgrades in Australia's existing commercial and residential building stock. A strong focus of this financial support should be given to supporting low-income households, in addition to a scaling up and accelerated delivery of the Green Start program.

v. **Build 21st century low pollution infrastructure:** Build clean energy infrastructure and networks by committing to a reform process to remove barriers to energy efficiency, smart grids and distributed generation within the National Electricity Market, implementing early reforms should drive distributed generation, large scale clean energy, and introduce guidelines to ensure federal funding of transport infrastructure is tied to energy efficiency and pollution reduction outcomes. In the absence of a price tag on pollution, facilitate the retirement of highly polluting generation infrastructure by 2020.

vi. **Build the skills capacity to take advantage of an economy based on clean energy**: Help unlock the low pollution economy workforce by:
    - implementing budget commitments and policies such as Clean Energy Initiative, Renewable Energy Bonus Scheme and the Green Loans are supported by industry training programs;
    - requiring at least a third of the 'Critical Skills Investment Fund' to focus on up-skilling workers to meet the needs of a cleaner economy;
    - dedicating places in the Productivity Places Program to up-skilling of our workforce for the low-carbon economy, and;
    - developing clean industry and innovation hubs in key regional centres, inviting partnerships between industry and the education sector.

Clean Energy Jobs

All credible studies have shown that Australia can take strong action to reduce its dependence on pollution while continuing to grow the economy and create new jobs for Australian workers.[33]

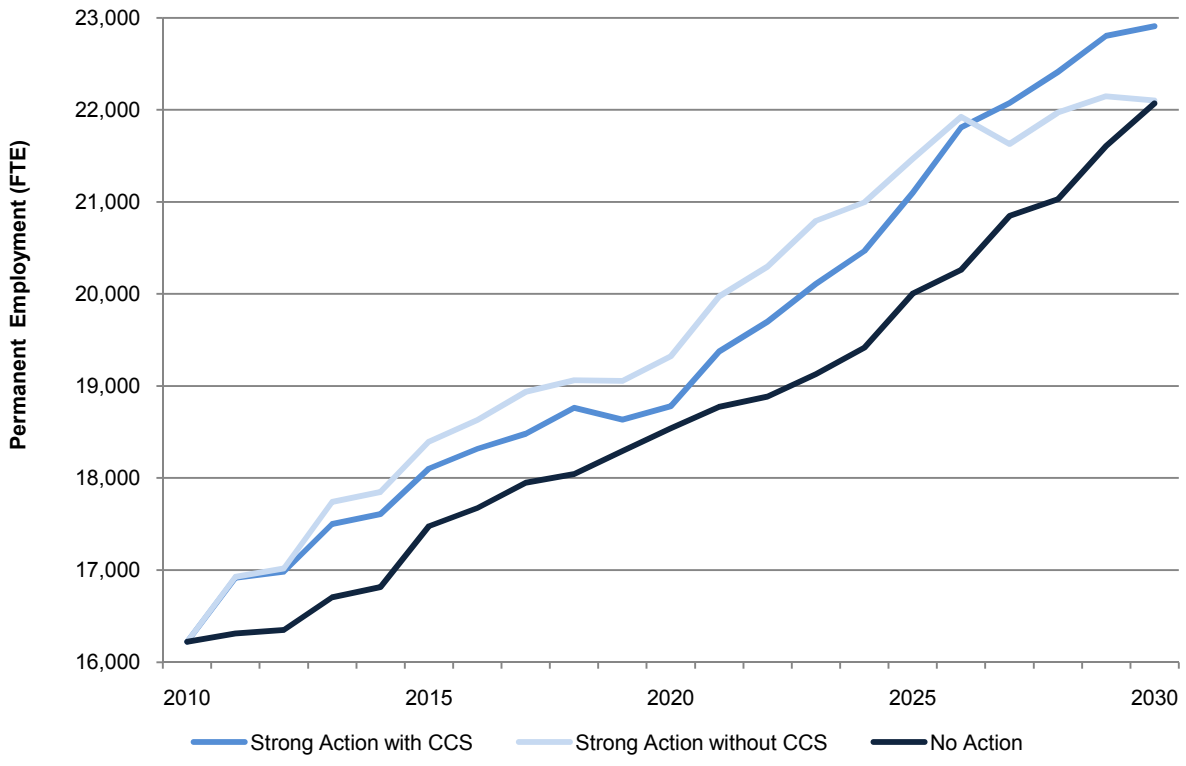
New jobs will be created as the economy as a whole continues to expand over the coming decades. According to the Government's own analysis, projections for national employment show an additional 1.7 million jobs being created from 2008 to 2020, with an additional 4.7 million out to 2050, even while national emissions are cut by 60 percent by 2050.[34]

The electricity sector is one segment of the economy where strong jobs growth is projected. The need to shift away from high polluting fossil fuel energy sources to low pollution alternatives, such as wind, geothermal, solar, and carbon capture and storage, will stimulate tens of billions of dollars of investment in the power sector over the coming decades.

The Climate Institute estimates that between now and 2030 over 5,000 new permanent jobs will be created in Australia's power sector, with a peak construction phase workforce of more than 15,800 people. As many as 13,800 new local manufacturing jobs could also be supported. (See Figure 6.)

A supportive policy setting will be essential to maximise employment opportunities in the electricity sector over the coming decades.. This includes policies to support investments in new, low-carbon, energy sources and technologies that will create new jobs. However, a suite of other policies will also have an important role to play, including those designed to support training and skills development and regional development.

FIGURE 6: PROJECTED PERMANENT JOBS GROWTH IN THE ELECTRICITY 2010 TO 2030[35]



5. Conclusions

This Action Plan on Pollution and Climate Change sets out a policy roadmap of credible policies to deliver the bi-partisan 2020 pollution reduction targets of up to 25 per cent reductions off 2000 levels, and drive a fast but fair transition to a low pollution economy.

Australians understand that we have a pollution dependent economy that not only is making climate change worse but is dangerous for our health, our environment, and our economic prosperity.

This Policy Roadmap sets out priorities in three areas:

1. Limiting and reducing pollution at home and internationally;
2. Making companies take responsibility for their pollution; and
3. Making clean energy cheaper.

Central to an effective policy suite will be a commitment to legislate a credible mechanism to limit and put a price tag on pollution in the life of the next Parliament.

During the election campaign The Climate Institute will be analysing policies from the ALP, Coalition and The Greens with a star rating under each of the three headings and an overall summary rating. These will be updated regularly on our website www.climateinstitute.org.au.

The Climate Institute will have another analytical tool, our 'Pollute-o-meter', which quantifies the pollution reduction impact of announced policies against business as usual predictions. Current business as usual pollution projections will see at least a 20 per cent increase above 1990 levels by 2020.

The Pollute-o-meter will test the credibility of policies from all three parties against the overall goal of reversing rising national pollution levels by 2013, achieving a net reduction by 2020 off 2000 levels and transitioning to a net zero pollution economy by 2050.

For the ALP and the Coalition in particular, the challenge will be to commit to policies that will close the gap between business-as-usual pollution trends and the target range of 5 to 25% reductions by 2020, which they both support. At this stage neither major party has credible policies for these international commitments.

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